

Comments RE: WY O&G permits

Elaine Lai to: Bruce Kent

03/10/2011 12:49 PM

From: Elaine Lai/R8/USEPA/US
To: Bruce Kent/R8/USEPA/US
Cc: Tricia Pfeiffer/R8/USEPA/US@EPA, Amy Bergdale/R3/USEPA/US@EPA, Chuck
Bcc: Tinsley/R8/USEPA/US@EPA, Colleen Gillespie/R8/USEPA/US@EPA, Douglas Minter/R8/USEPA/US@EPA, Gregory Oberley/R8/USEPA/US@EPA, Nathan Wiser/R8/USEPA/US@EPA, Steven
Pratt/R8/USEPA/US@EPA, Peggy Livingston/R8/USEPA/US@EPA, Dan Wall/R8/USEPA/US@EPA, Laura
Phillips/DC/USEPA/US@EPA, Bob Brobst/R8/USEPA/US@EPA, Al Garcia/R8/USEPA/US@EPA, Qian
Zhang/R8/USEPA/US@EPA, Mike Wireman/R8/USEPA/US@EPA, Darcy OConnor/R8/USEPA/US@EPA,
Natasha Davis/R8/USEPA/US@EPA, Robert Shankland/R8/USEPA/US@EPA
colborn@tds.net, Weston Wilson <anwwilson@comcast.net>

I echo many of the comments submitted by Peggy and Dan. My comments surround the following (more detailed comments on each provided below):

1) Definition of produced water as formation water

2) Explicitly distinguishing (3) possible types of discharges occurring at facilities

3) Definition for de minimus and other parameters to identify when flowback transitions to 'formation fluid'

4) WET recommendation

1) Definition of produced water. I disagree with the use of the definition of produced water as provided in SubPart A, the offshore category. Since we do not have a definition established for Subpart E, I am following on your recommendation, Bruce, to explore the intent of the ELG's based on what is captured in the ELG development document. I believe that the ELG development document is clear in its intent that produced water is simply, formation water. The justification is provided in the following statements captured from the January 1976 development document:

- Discusses field services for wells "A number of satellite industries specialize in providing certain services to the production side of the oil industry. Some of these service industries produce a particular class of waste that can be identified with the service they provide...Other services include completions, workovers, well acidizing, and well fracturing. (**distinguishes well stimulation activities as *separate services* that produce a different class of waste**)
- **Provides the definition: "Produced water includes all waters and particular matter associated with oil and gas producing formations. Sometimes the terms "formation water" or "brine water" are used to describe produced water."**

- Treatment of wells includes acidizing and hydraulic fracturing to improve oil recovery... Chemical treatments of wells consists of pumping acid or chemicals down the well to remove formation damage and increase drainage in the permeable rock formations.. (p 39)
- In discussing zero discharge technologies, they clarify "the term 'disposal' as used here refers to the injection of "produced fluids..." (**This would establish a separate terminology is being used to distinguish fluids that contain chemicals from treatments as opposed to produced water which would not contain added chemicals.**)
- Drilling wastes are generally in the form of drill cuttings and mud, and production wastes are generally produced water. ADDITIONALLY, well workover and completion operations can produce wastes, but they are generally similar to those from drilling or production operations (distinguishes between fluids from well workover and produced water) (**This again identifies and distinguishes produced water from other types of wastes that could exist from well workover and completion operations**)
- Further, and Specific to Subpart E, the regulations state: There shall be no discharge of waste pollutants into navigable waters from any source (other than produced water) associated with production, field exploration, drilling, well completion, or **well treatment** (i.e. , drilling muds, drill cuttings, and produced sands). (**This again distinguishes produced water as a class of waste as unique and separate from what may be put down hole with any activity associated with those mentioned.**)

2) Explicitly distinguishing (3) possible types of discharges occurring at facilities. Our permits and SOBs need to explicitly identify that three distinct types of discharges are occurring. These are: 1) 'normal' produced water, which I refer to as formation fluid; 2) discharge post maintenance (in my case, these occur every two weeks and range from 9-53 bbls of dilute chemical mixtures being pumped down specific wells; and 3) discharge post well stimulation which occurs sporadically (in my case, averaging every 2 years). Given these three distinct types of discharges that are being discharged through our permits, our limits and monitoring requirements need to address requirements pertinent to each of these three types of discharges. For example, if we are going to require WET, I would require WET be performed separately on each of these three types of discharges since the reason why WET would fail would differ completely based on the type of discharge that is occurring. I think this is particularly important to address in the case of post well stimulation activities (acidizing, hydrofrak) since in the current version of the draft permit we *are allowing* "de minimus" amounts of these chemicals to be discharged through our NPDES permit.

3) Definition for de minimus and other parameters to identify when flowback transitions to 'formation fluid'. I echo Peggy and Dan's comment that we need to define 'de minimus'. As for other suggestions as to what to monitor for to gage when flowback water is transitioning back to formation fluid (what I think produced water is actually intended to mean), Anadarko indicates that they use volume (you must capture *at least* the same volume as what you are pumping in; I would

recommend the consideration of a safety factor here, maybe 1.25 times the volume you pumped downhole must be captured). Mike Wireman, a groundwater expert here in R8, indicates that TDS would be a good parameter to use to characterize formation fluid and to use as a key indicator.

4) WET recommendation. I already mentioned this in (2) above, but I would strongly recommend that WET be conducted separately on discharges of 1) formation fluid; 2) fluid post monthly or bimonthly well maintenance treatments; and 3) post stimulation. I believe that it is especially critical post stimulation since in the current version of the draft permit we *are allowing* "de minimus" amounts of these chemicals to be discharged through our NPDES permit. The reason why WET will fail may likely differ depending on the type of discharge that is occurring.